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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/508,945	10/01/2004	Sumie Suda	259727US0XPCT	7750
22850	7590	07/31/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
YEE, DEBORAH				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
07/31/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/508,945

Applicant(s)

SUDA ET AL.

Examiner

Deborah Yee

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-14, 43-46 and 48-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-14, 43-46 and 48-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 3/24/08

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11 to 14, 43 to 46 and 48 to 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over computer-generated English translation of Japanese patent 7-90495 (hereinafter JP'495) in view of US Patent 6,645,319 (hereinafter Nagao et al.) or Japanese patent 08-120407 (hereinafter JP'407) for the reasons set forth in the previous office action dated January 30, 2008.
3. With regard to newly submitted claims 49 and 50, JP-495 in paragraph [0011]-[0012] teach making steel wire rod in substantially the same manner as present invention comprising the steps of rolling to obtain wire rod, austenitizing at 950-1200°C, quenching, and holding at 650-500°C for 5 seconds to 5 minutes.

Response to Arguments

4. Applicant's arguments filed April 30, 2008 have been fully considered but they are not persuasive.
5. It was submitted that JP-495 discloses a steel wire containing 0.7 to 1.0 w% C and 0.05-1.0 vol. % of carbide of V or Nb having a size of 0.1 µm or less. JP-495 discloses that C less than 0.7 wt% causes deterioration of strength (JP-495 at column 2,

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line 40) and the size of carbide of V or Nb more than 0.1 μm impairs workability (JP-495 at column 3, lines 10-11).

6. Applicant argued that JP-495 is silent about carbides having a size of more than 0.1 μm , and fails to suggest the independent claim 11 limitations of a "hard-drawn steel wire comprising: C: 0.5 to 0.68 mass%..., said wire...further comprising 5 particles/ 100 μm^2 or less of carbides wherein the circle-equivalent diameters of the carbides are more than 0.1 μm ."

7. With regard to C content, JP-495 steel contains a lower C limit of 0.7% whereas present invention steel contains an upper limit of 0.68% C. Note, however, that it is well known in the art that C is an effective element for ferritic-pearlitic steel wire to increase strength but toughness and ductility can be compromised with higher C levels; see computer-generated English translation of JP-495 in paragraph [0008] and Nagao et al. on lines 46 to 61 in column 3. Also similar to the prior art teaching, Applicant's steel can contain at most 0.7% C to enhance strength but excessive C can cause cracking (equivalent to reduction in toughness) and reduce fatigue life and sag resistance, see first paragraph on page 4 of instant specification. Since Applicant has not demonstrated 0.68% C to be somehow critical and productive of new and unexpected results, then the difference between 0.68% C verses 0.70% C would be a matter of routine optimization of an alloying constituent to achieve the desired balancing of known properties (strength and toughness).

8. Applicant argued that there is no motivation to combine Nagao et al. with JP-495 to lower C content. In response to argument, Nagao et al. is a general teaching to show

how C affects the properties for ferritic-pearlitic steel wire. Although JP-495 teaches utilizing high C content, it would be a matter of choice and alternative alloy design well within the skill of the artisan to lower C in ferritic-pearlitic steel wire of JP-495 when higher toughness property is desired and sought depending upon its application. Note that a known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.

9. With regard to carbides, JP-495 teaches 0.05-1.0 vol. % of carbide of V or Nb having a size of 0.1 μm or less which would meet the claimed limitation 5 particles/ 100 μm^2 **or less** of carbides wherein the circle-equivalent diameters of the carbides are more than 0.1 μm . Although Applicant's limitation tolerates carbides having a size of more than 0.1 μm , it still has a lower limit of zero by reciting "**or less**". Therefore carbides at $> 0.1 \mu\text{m}$ need not be present in Applicant's steel and would not patentably distinguish over JP-495. In addition, the goal of present invention and JP-495 are very similar since they both teach away from high density of coarse carbides in order to achieve high strength, toughness and ductility.

10. With regard to JP-407, it is a general teaching to show that by restricting average grain size of carbides (Fe_3C) in an analogous pearlite steel wire alloy, then superior strength with excellent ductility and high toughness with no occurrence of longitudinal cracking during forming can be produced which is also taught in Applicant's specification, last paragraph on page 5.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1793

/DY/